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ILLICIT DISCHARGE DETECTION AND ELIMININATION

MS4 GENERAL PERMIT COMPLIANCE

JUNE 2020

TOWN OF
Hopedale
MASSACHUSETTS

idde

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1.0 INTRODUCTION

1.1 MS4 Program

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed by the Town of Hopedale to address the requirements of the 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) set forth by the United States Environmental Protection Agency (USEPA).

Under the MS4 permit, Hopedale is required to employ best management practices for the six minimal control measures in an effort to reduce the discharge of pollutants from the MS4 to the maximum extent practicable. The measures are as follows:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management); and
6. Good Housekeeping and Pollution Prevention for Permittee Owned Operations.

As part of Minimum Control Measure No. 3, Illicit Discharge Detection and Elimination (IDDE), the Town is required to implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its MS4 and implement procedures to prevent such discharges. This includes, but is not limited to, the following measures:

1. Developing a comprehensive map of the Town's drainage system that builds upon the outfalls and receiving waters that were previously mapped under the 2003 MS4 Permit.
2. Ensuring that appropriate regulatory mechanisms and enforcement procedures, as required under the 2003 MS4 Permit, are in place to prohibit illicit discharges.
3. Developing and implementing a written plan to detect and eliminate illicit discharges, which references the Town's authority to implement all aspects of the IDDE program, clearly identifies responsibilities with regard to eliminating illicit discharges, and outlines written procedures for dry and wet weather outfall screening and sampling and catchment investigations.
4. Providing training annually to employees involved in the IDDE program about the program, including how to recognize illicit discharges and SSOs.

Hopedale has developed an IDDE Plan, outlined in this section and associated appendices, to address these requirements.

1.2 Purpose of the Plan

The MS4 Permit defines an illicit discharge as "any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a NPDES Permit (other than the MS4 Permit) and discharges resulting from fire-fighting activities."

The following categories of non-stormwater discharges are allowed under the MS4 Permit unless the Town, EPA, or the MassDEP identifies any category or individual discharge of non-stormwater discharge

identified below as a significant contributor of pollutants to the MS4, then that category or individual discharge is not allowed, and shall be deemed an "illicit discharge" that must be addressed as part of the Town's Illicit Discharge Detection and Elimination (IDDE) Program.

1. Water line flushing
2. Landscape irrigation
3. Diverted stream flows
4. Rising ground water
5. Uncontaminated ground water infiltration (as defined at 40 CFR § 35.2005(20))
6. Uncontaminated pumped ground water
7. Discharge from potable water sources
8. Foundation drains
9. Air conditioning condensation
10. Irrigation water, springs
11. Water from crawl space pumps
12. Footing drains
13. Lawn watering
14. Individual resident car washing
15. Flows from riparian habitats and wetlands
16. De-chlorinated swimming pool discharges
17. Street wash waters
18. Residential building wash waters without detergents

Discharges or flows from firefighting activities are also allowed under the MS4 Permit and need only be addressed where they are identified as significant sources of pollutants to waters of the United States.

Illicit discharges could be categorized as: a fixed-point source, such as illegal/improper sanitary or floor drain connections; isolated or recurring discharges, such as illegal dumping and improper disposal of waste from boats/campers; or indirect sources, such as cracks/defects in the infrastructure that allow infiltration into the drainage system.

Illicit discharges result in contamination of the drainage system and the subsequent discharge of pollutants to the environment. Efforts should be made to identify and remove illicit discharges to the drainage system through development and implementation of a comprehensive IDDE Plan.

The purpose of this IDDE Plan is to remove pollutants from the stormwater discharged from municipal outfalls by identifying and allowing for elimination of illicit discharges to the drainage infrastructure tributary to the outfalls. The focus of the Plan is primarily the identification of fixed-point source discharges; however, some isolated/recurring direct, as well as indirect sources will likely be identified during the investigation.

1.3 Development of the Plan

1.3.1 Mapping

Hopedale is required to build upon the outfall and receiving waters map that was required under the 2003 MS4 Permit. The revised map shall be completed in two phases as outlined below and is intended to facilitate the identification of key infrastructure and factors influencing proper system operation, and the potential for illicit discharges.

Phase 1: The system map is required to be updated within two (2) years of the permit effective date to include the following:

- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally-owned stormwater treatment structures (e.g. detention and retention basins, infiltration systems, bioretention areas, water quality swales, gross particle separators, oil/water separators, or other proprietary systems.)
- Water bodies identified by name and indication of all use impairments as identified on the most recent EPA approved Massachusetts Integrated List of Waters report pursuant to Clean Water Act sections 303(d) and 305(b).
- Initial catchment delineations. A catchment is the area that drains to an individual outfall or interconnection. Topographic contours and drainage system information may be used to produce initial catchment delineations (required by end of Year 1).

Phase 2: The system map shall also be updated annually as the following information becomes available during implementation of catchment investigation procedures. This information must be included in the map for all outfalls within ten (10) years of the permit effective date:

- Outfall spatial location (latitude and longitude with a minimum accuracy of +/- 30 ft)
- Pipes
- Manholes
- Catch basins
- Refined catchment delineations. Catchment delineations shall be updated to reflect information collected during catchment investigations
- Municipal sanitary sewer

The following are recommended elements to be included in the system map as information becomes available:

- Storm sewer material, size (pipe diameter) and age
- Sanitary sewer system material, size (pipe diameter) and age
- Privately owned stormwater treatment structures
- Where a municipal sanitary sewer system exists, properties known or suspected to be served by a septic system, especially in high-density urban areas
- Area where the permittee's MS4 has received or could receive flow from septic system discharges (e.g., areas with poor soils, or high ground water elevations unsuitable for conventional subsurface disposal systems)

- Seasonal high-water table elevations impacting sanitary alignments
- Topography
- Orthophotography
- Alignments, dates and representation of work completed (with legend) of past illicit discharge investigations (e.g., flow isolation, dye testing, CCTV)
- Locations of suspected, confirmed and corrected illicit discharges (with dates and flow estimates).

The mapping will serve as a planning tool for the implementation and phasing of the Town's IDDE Program and demonstration of the extent of complete and planned investigations and corrections. The Town will update their mapping as needed to reflect newly discovered information and required corrections of modifications. The Town will report annually on the progress toward completion of the system map in their MS4 Annual Report.

1.3.2 Municipal Infrastructure

Hopedale already has in place a comprehensive drainage GIS. In addition to mapping known outfalls and receiving waters as required by the 2003 MS4 Permit, the Town has also mapped much of their remaining MS4 infrastructure including storm drain manholes, catch basins, and drainage pipes. In addition, some of the interconnections have been mapped, which show where the Town's MS4 discharges into a neighboring MS4. The Town's existing drainage map, which will be updated annually, is included in Appendix A.

1.3.3 Non-Municipal Infrastructure

Hopedale plans to review drainage infrastructure within town boundaries to determine ownership in Year 3. Private infrastructure or infrastructure owned and operated by another municipality or a state entity will be determined and designated in the Town's drainage GIS. Although not currently mapped, it is known that Hopedale currently has interconnections with MassDOT.

1.4 Receiving Waters and Impairments

Table 1-1 lists impaired waters, based on the 2014 Massachusetts Integrated List of Waters developed by MassDEP, that are either located within the boundaries of Hopedale's regulated area or to which Hopedale is tributary to in the case of nutrient impairments. The 2014 Massachusetts Integrated List of Waters is the most recently approved list. A water body is impaired if it does not meet one or more of its designated use(s). For purposes of the MS4 Permit, "impaired" refers to categories 4 and 5 of the five-part categorization approach used for classifying the water quality standards attainment status for water segments under the TMDL program. Impaired waters compilations are also sometimes referred to as "303(d) lists." Category 5 waters are impaired because at least one designated use is not being supported or is threatened and a TMDL is needed. Category 4 waters indicate that at least one designated use is not being supported but a TMDL is not needed (4a indicates that a TMDL has been approved or established by EPA; 4b indicates other required control measures are expected in result in the attainment of water quality standards in a reasonable period of time; and 4c indicates that the non-

attainment of the water quality standard is the result of pollution (e.g. habitat) and is not caused by a pollutant).

Table 1-1: Impaired Waters Applicable to Hopedale			
Water Body Name	Segment ID	Impairment(s)	Approved TMDL?
Upper/Middle Charles River	MA72-03	(Low flow alterations*), (Other flow regime alterations*), Dissolved Oxygen Saturation, Escherichia Coli, Excess Algal Growth, Organic Enrichment Biological Indicators, Phosphorus (Total)	Phosphorus
Charles River Watershed	MA72-03	(Low flow alterations*), (Other flow regime alterations*), Dissolved Oxygen Saturation, Escherichia Coli, Excess Algal Growth, Organic Enrichment Biological Indicators, Phosphorus (Total)	Bacteria/Pathogens
Hopedale Pond	Formally MA51065 now part of MA51-35	(Non-Native Aquatic Plants*), Macrophytes, PCB in Fish Tissue	No
Mill River	MA51-35	(Non-Native Aquatic Plants*), Macrophytes, PCB in Fish Tissue	No

*TMDL not required (non-pollutant).

All impaired water bodies are shown on the map of the Town's drainage system included in Appendix A.

1.5 IDDE Program Goals

The goals of Hopedale's IDDE program are to find and eliminate illicit discharges to the Town's municipal separate storm system and prevent illicit discharges in the future. The program consists of the following components:

- Legal authority and regulatory mechanism to prohibit discharges and enforce this prohibition
- Storm system mapping
- Inventory and ranking of outfalls
- Dry weather outfall screening
- Wet weather sampling
- Catchment investigations
- Identification/confirmation of illicit sources
- Illicit discharge removal
- Follow-up screening
- Employee training

A base timeline for each of these goals, set forth by the permit, is shown in Table 1-2.

Table 1-2: Milestones for IDDE Program Implementation							
IDDE Program Requirement	Completion Date from Effective Date of Permit						
	1 Year	1.5 Years	2 Years	3 Years	4 Years	7 Years	10 Years
IDDE Regulatory Mechanism or Bylaw			X				
Written IDDE Program Plan			X				
SSO Inventory			X				
Written Catchment Investigation Procedure			X				
Phase I Mapping				X			
Phase II Mapping							X
Dry Weather Outfall Screening and Sampling *(following initial ranking presented in Section 3)*					X		
Follow-up Ranking of Outfalls and Interconnections					X		
Catchment Investigations – Problem Outfalls *(to begin no later than two (2) years from permit effective date)*						X	
Catchment Investigations – Likely Sewer Input *(where dry weather outfall/interconnection sampling indicates likely sewer input)*						X	
Catchment Investigations – High and Low Priority Outfalls *(to follow ranking presented in Section 3)*							X
Wet Weather Screening and Sampling							X

1.6 Sanitary Sewer Overflows (SSOs)

Sanitary Sewer Overflows (SSOs) are included in the MS4 Permit's definition of illicit discharges and can be defined as discharges of untreated sanitary wastewater from a municipal sanitary sewer that can contaminate surface waters, cause serious water quality problems and property damage, and threaten public health. SSOs can be caused by blockages, line breaks, power failures, vandalism, and sewer defects. This includes SSOs resulting during dry or wet weather, from inadequate conveyance capacities, or where interconnectivity of the storm and sanitary sewer infrastructure allows for communication of flow between the systems.

Hopedale will maintain and annually update an inventory, that identifies all known locations where SSOs have discharged to the MS4 within the five (5) years prior to the effective date of the MS4 Permit (July 1, 2018), and any SSOs that have occurred thereafter. This includes SSOs resulting, during dry or wet weather, from inadequate conveyance capacities, or where interconnectivity of the storm and sanitary sewer infrastructure allows for transmission of flow between the systems. The inventory will include the following information, when available:

- Location (approximate street crossing/address and receiving water, if any);
- A clear statement of whether the discharge entered a surface water directly or entered the MS4
- Date(s) and time(s) of each known SSO occurrence (i.e., beginning and end of any known discharge);
- Estimated volume of the occurrence;
- Description of the occurrence indicating known or suspected cause(s);
- Mitigation and corrective measures completed with dates implemented; and
- Mitigation and corrective measures planned with implementation schedules.

Upon detection of an SSO, Hopedale will provide oral notice to EPA within 24 hours, a written notice to EPA within five (5) days and shall include the information in the updated inventory as identified above, and mitigate it as expeditiously as possible taking interim measures to minimize the discharge of pollutants to and from its MS4 until elimination is completed.

Hopedale has had four SSO occurrences in the five years prior to the permit effective date, and since the permit became effective. The SSO inventory in Appendix B will be updated by the Town of Hopedale when new SSOs are detected. The SSO inventory will be maintained as part of the Town's Stormwater Management Plan and will also be included in the Town's MS4 Annual Reports, including the status of mitigation and corrective measures to address each identified SSO.

2.0 AUTHORITY AND RESPONSIBLE PARTIES

2.1 Legal Authority

The Town of Hopedale does not currently have a regulatory mechanism in place that governs illicit discharges, but a draft bylaw been created for adoption by the Town. Language willbe adopted to prohibit illicit discharges and connections to the municipal storm drain system. This bylaw will provide the adequate legal authority to accomplish the following:

- Prohibit illicit discharges.
- Investigate suspected illicit discharges.
- Eliminate illicit discharges, including discharges from properties not owned by or controlled by Hopedale that discharge into the MS4 system.
- Implement appropriate enforcement procedures and actions.

2.2 Responsible Parties

The Highway Department Director will be the lead person responsible for implementing the IDDE program pursuant to the bylaw, which will cover illicit discharges and connections. Other agencies, departments, or personnel with responsibility for aspects of the program include:

Table 2-1: Parties Responsible for IDDE Program Implementation

Department/Title	Responsibilities
Highway Department/Director	Overall IDDE Program Implementation Conducts Annual IDDE Training Oversees the Monitoring and Repair of the Sanitary Sewer & Storm Drain Systems Administration/Implementation/Enforcement Actions Oversees Reporting of Citizen Service Requests Assists with Mapping Updates in GIS Oversees Mapping Updates in GIS and Oversees Maintenance of Drainage System Geodatabase & Mapping
Board of Health/Director	Oversees Title V Septic System Inspections Repairs & Construction, Plumbing Code Enforcement

3.0 CATCHMENT DELINEATION AND PRIORITY RANKING & CLASSIFICATION OF OUTFALLS/CATCHMENTS/INTERCONNECTIONS

The MS4 Permit requires an assessment and priority ranking of catchments in terms of their potential to have illicit discharges, SSOs, and other factors, related to public health. The ranking will determine the priority order for field screening of the outfalls and interconnections. Priority catchments will be investigated for evidence of illicit discharges. The ranking of catchments provides the basis for determining permit milestones as certain catchments need to be investigated by certain years of the Permit depending on their classification.

3.1 Catchment Delineations

A catchment is the land area that drains to an outfall or interconnection. The extent of an outfall's catchment is determined not only by localized topography and impervious cover but also by the location of drainage structures and the connectivity of MS4 pipes. The catchment delineation process considered each catch basin upstream from the outfall or interconnection and the area that would conceivably drain to that catch basin based on topography and impervious cover. As drainage infrastructure mapping becomes more complete over the course of the investigations performed throughout the permit term, this exercise will be refined and updated. Once the catchments were delineated, they were assessed for potential illicit discharges and SSOs based upon the presence of relevant factors outlined in the MS4 Permit.

3.2 Initial Ranking

The Town completed an initial inventory and priority ranking to assess the illicit discharge and SSO potential of each regulated catchment and the related public health significance. The ranking will determine the priority order for screening of outfalls and interconnections, catchment investigations for evidence of illicit discharges and SSOs, and provide the basis for determining permit milestones. This inventory and ranking will be updated annually throughout the permit term to reflect new findings from dry and wet-weather sampling and other IDDE program activities, and will be included in the Town's MS4 Annual Report.

Outfalls and interconnections are classified into one of the following categories:

1. Problem Outfalls: Outfalls/Interconnections with known or suspected contributions of illicit discharges based on existing information. This includes any outfalls/interconnection where previous screening indicates likely sewer input. Likely sewer input indicators are any of the following:

    a. Olfactory or visual evidence of sewage;
    b. Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
    c. Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

    Problem outfalls do not require dry weather screening.

2. High Priority Outfalls: Outfalls/interconnections that are not problem outfalls but do meet either of the following criteria:
    a. Discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds;
    b. Have been determined by the Town as high priority based upon the criteria included under the ranking rationale.

3. Low Priority Outfalls: Outfalls/interconnections determined by the Town as low priority based upon the criteria included under the ranking rationale.

4. Excluded Outfalls: Outfalls/interconnections with no potential for illicit discharges. Catchments that only include:

    a. Roadway drainage in undeveloped areas with no dwellings or sanitary sewers;
    b. Drainage for athletic fields, parks or undeveloped green space and associated parking without services; and
    c. Cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.

3.3 Ranking Rationale

The Town is required to priority rank outfalls and interconnections within each category (except for Excluded Outfalls), based on the following characteristics of the initial catchment area. The Town is required to, at a minimum, consider the following screening factors where relevant:

- Past discharge complaints and reports.
- Poor receiving water quality- the following guidelines are recommended to identify waters as having a high illicit discharge potential: exceeding water quality standards for bacteria; ammonia levels above 0.50 mg/l; surfactants levels greater than or equal to 0.25 mg/l.
- Density of generating sites - Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples of these sites include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.
- Age of development and infrastructure – Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old will probably have a high illicit discharge potential. Developments 20 years or younger will probably have a low illicit discharge potential.
- Sewer conversion – Contributing catchment areas that were once serviced by septic systems, but have been converted to sewer connections, may have a high illicit discharge potential.
- Historic combined sewer systems – Contributing areas that were once serviced by a combined sewer system, but have been separated, may have a high illicit discharge potential.
- Surrounding density of aging septic systems – Septic systems thirty years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.
- Culverted streams – any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.

Water quality limited waterbodies that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.

- Additional relevant characteristics, including location-specific characteristics.

Prioritization and ranking will be updated as more information becomes available. In order to rank all regulated catchment areas in Hopedale, the Town assessed each catchment based on the following criteria using the rationale discussed:

1. Past discharge complaints and reports.

   Rationale for Ranking: Complaints most commonly result from visual or olfactory observations, which are the easiest illicit discharges to find. These catchments offer the highest potential for finding and eliminating illicit discharges as quickly as possible. The Town of Hopedale 's Board of Health does not have any record of discharge complaints and reports.

2. Poor dry weather receiving water quality-the following guidelines are recommended to identify waters as having a high illicit discharge potential: exceeding water quality standards for bacteria; ammonia levels above 0.50 mg/l; or surfactants levels greater than or equal to 0.25 mg/l.

   Rationale for Ranking: Poor in-stream water quality is a good indicator of pollutant sources associated with illicit discharges, especially if there are identified hot spots. However, this priority requires the availability of existing in-stream data for the pollutants of concern, which is not available from the Town. Furthermore, for Hopedale, receiving water quality has already been assessed and captured through the establishment of TMDLs for phosphorus for bacteria and pathogens as well as the Charles River Watershed.

3. Density of generating sites - Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples of these sites include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.

   Rationale for Ranking: Areas of the town where these sites are located have been identified and prioritized accordingly.

4. Age of surrounding infrastructure – Areas where the sanitary sewer system is more than 40 years old.

   Rationale for Ranking: Exfiltration from aging or damaged sewers into drains is becoming a leading source of illicit discharge related pollutants found in MS4 discharges; however, these discharges are often very difficult to locate, and end up being identified only through an iterative investigation process. For this reason, these sources are listed as a slightly lower priority than pollutant sources that may be easier to locate and remove. Most of Hopedale is on sanitary sewer. The exact age of the infrastructure is not known, but the majority of the Town's sewer system is over 40 years old.

5. Age of surrounding development– Industrial areas greater than 40 years old.

Rationale for Ranking: The age of industrial areas gains no further benefit to prioritization, unless the age of subsurface infrastructure is not known. When the age of the infrastructure is not known, the age of the development can be used to estimate that for the infrastructure. In areas where the age of subsurface infrastructure is unknown in Hopedale, the age of development was used as a surrogate.

6. Sewer conversion – Catchments that were once serviced by septic systems but have been converted to sewer connections may have a high illicit discharge potential.

   Rationale for Ranking: Abandoned septic systems can still leach pollutants into the ground, which in turn, can migrate into drainage systems; however, soils do absorb/treat these pollutants over time. For this reason, this source should be a lower priority than active/existing septic systems and sewers that provide a greater and longer-term threat to water quality. The Town's Board of Health and Sewer Department do not have any available data regarding abandoned septic systems and sewer conversions, but will record such events in the future.

7. Historic combined sewer systems – Catchments that were once serviced by a combined sewer system, but have been separated may have a high illicit discharge potential.

   Rationale for Ranking: Hopedale does not have any historically combined areas in Town.

8. Density of aging septic systems – Septic systems 30 years or older in residential land use areas.

   Rationale for Ranking: Failing septic systems discharge higher pollutant loads into the ground, which in turn, can migrate into nearby drainage infrastructure. Although similar to exfiltration from sewers, septic systems are generally located further away from drainage infrastructure than sewers, making their illicit discharge and pollutant loading potential lower. For this reason, aging septic systems are listed as a slightly lower priority than aging sewers. The Town's Board of Health does not have available data on aging septic systems, but will monitor and record these systems moving forward.

9. Culverted streams – any river or stream that is culverted for distances greater than a simple roadway crossing may be considered "high" potential.

   Rationale for Ranking: Culverts are only a concern if there are MS4 discharges located inside the culvert. The Town's stormwater system map will allow these locations to be identified and prioritized.

10. Water quality limited waterbodies that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.

    Rationale for Ranking: For Hopedale, this includes waters impaired for bacteria/pathogens (1st priority) and nutrient-related impacts (phosphorus) (2nd priority) where impacts may be associated with failing septic systems. The TMDL for phosphorus and bacteria for the Charles River is applicable to Hopedale.

11. The permittee may add additional relevant factors, including location-specific screening factors.

    Rationale for Ranking: At this time, there are no other relevant factors for screening in Hopedale that have not already been addressed under the list above. Should a new factor be identified, an appropriate priority will be assigned.

Appendix D provides a comprehensive table of all regulated catchments and interconnections within Hopedale. This table identifies the applicability of relevant screening factors to a particular catchment. All screening factors are weighted, and each catchment is prioritized and ranked according to those screening factors. Table 3.1 provides a breakdown of those outfalls by category.

Table 3-1: Catchment Priority Ranking by Category

Category	Relevant Outfalls
Problem Outfalls	-
High Priority Outfalls	28
Low Priority Outfalls	131
Excluded Outfalls	-

4.0 DRY WEATHER SCREENING AND SAMPLING

The MS4 Permit requires screening and sampling of all regulated outfalls and interconnections (with the exception of Problem and Excluded Outfalls) from the MS4 during dry weather conditions for evidence of illicit discharges and SSOs by June 30, 2021. All outfalls and interconnections are to be screened in accordance with their initial ranking as included in Appendix D. The Highway Department is responsible for facilitating the Town's dry weather outfall and interconnection screening and sampling efforts.

4.1 Dry Weather Criteria

Dry weather screening and sampling shall proceed when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow-melt is occurring. If these conditions are met, then the Town of Hopedale will proceed with dry weather screening and sampling per the methodology outlined in Section 4.2.

4.2 Sampling Parameters and Methodology

4.2.1 General Procedure

Dry weather sampling shall follow these general steps:

1. Identify outfall(s) and interconnection(s) to be screened/sampled based on initial outfall inventory and priority ranking.
2. Acquire the necessary staff, mapping, and field equipment.
3. Conduct the outfall inspection during dry weather:
    a. Mark and photograph the outfall.
    b. Record the inspection information and outfall characteristics including:
        i. Unique identifier,
        ii. Receiving water,
        iii. Date of most recent inspection,
        iv. Dimensions,
        v. Shape,
        vi. Material (concrete, PVC),
        vii. Spatial location (latitude and longitude with a minimum accuracy of +/- 30 feet,
        viii. Physical condition
    c. Look for and record visual/olfactory evidence of non-stormwater discharges in flowing outfalls including odor, color, turbidity, floatable matter (suds, bubbles, excrement, toilet paper or sanitary products) and oil sheen. Also observe outfalls for deposits and stains, vegetation, and damage to outfall structures.
4. If flow is observed, sample and test the flow following the procedures described in the following sections.

5. If an outfall/interconnection is inaccessible or submerged, either partially or completely, proceed to the first accessible upstream manhole or structure for observation and sampling and report the location with the screening results. Field staff shall continue to the next upstream structure until there is no longer an influence from the receiving water on the visual inspection or sampling.
6. If no flow is observed, but evidence of illicit flow exists (illicit discharges are often intermittent or transitory), revisit the outfall during dry weather within one week of the initial observation, if practicable, to perform a second dry weather screening and sample any observed flow. Other techniques can be used to detect intermittent or transitory flows including conducting inspections during evenings or weekends.
7. Input results from screening and sampling into spreadsheet/database. Update the catchment and priority ranking matrix accordingly.
8. Include all screening data in the Town's MS4 Annual Report.

4.2.2 Sample Collection

If flow is observed during dry weather conditions and a sample can be isolated, the sample shall be collected to test for the following parameters:

- Ammonia
- Surfactants (such as MBAS)
- Chlorine
- Conductivity
- Temperature
- Salinity
- E. Coli *(freshwater receiving water)*
- Pollutants of concern where the outfall or interconnection discharges directly into a water quality limited water or a water subject to an approved TMDL

Where an outfall or interconnection discharges directly into a water quality limited water or a water subject to an approved TMDL, the parameters identified in Table 4-1 must also be sampled based on the identified impairment as stated in Appendix G of the MS4 Permit.

Benchmark criteria for each parameter is included in Section 4.5.

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Table 4-1: Sampling Parameters Specific to Pollutants of Concern				
Water Body Name	Segment ID	Impairment(s)	Required Sampling Parameters	Applicable Outfalls & Interconnections
Charles River	MA72-03	DDT, Dissolved Oxygen Saturation, Escherichia Coli, Excess Algal Growth, Organic Enrichment (Sewage) Biological Indicators	Dissolved Oxygen E.Coli Enterococcus Temperature BOD_5 Total Phosphorus	OF-1, OF-141, OF-116
Hopedale Pond	MA51-35	Non-Native Aquatic Plants, Macrophytes, PCB In Fish Tissue	Temperature BOD_5	OF-36, OF-144, OF-40, OF-41,OF-42,OF-43, OF-44, OF-45, OF-46,OF-47, OF-48, OF-49, OF-50, OF-51, OF-52, OF-54, OF-55, OF-56, OF-57
Mill River	MA51-35	Non-Native Aquatic Plants, Macrophytes, PCB In Fish Tissue	Temperature BOD_5	OF-39, OF-72, OF-73, OF-79, OF-93, OF-100, OF-101, OF-104, OF-109, OF-110, OF-111, OF-112, OF-124, OF-135, OF-140, OF-146, OF-148, OF-154

The general procedure for collection of outfall samples is as follows:

1. Fill out all sample information on sample bottles and field sheets.
2. Put on protective gloves (nitrile/latex/other) before sampling.
3. Collect sample with dipper or directly in sample containers. If possible, collect water from the flow directly in the sample bottle. Be careful not to disturb sediments.
4. If using a dipper or other device, triple rinse the device with distilled water and then in water to be sampled (not for bacteria sampling).
5. Use test strips, test kits, and field meters for most parameters.
6. Place laboratory samples on ice for analysis of bacteria and pollutants of concern.
7. Fill out chain-of-custody form (Appendix E) for laboratory samples.
8. Deliver samples to RI Analytical in Warwick, RI; G&L Laboratories in Quincy, MA; or another EPA-approved laboratory.
9. Dispose of used test strips and test kit ampules properly.
10. Decontaminate all testing personnel and equipment.

4.3 Required Field Equipment

The following equipment shall be used during general field investigations:

Table 4-2: Recommended Field Equipment for IDDE Investigations	
Equipment	Use/Notes
Clipboard	For organization of field sheets and writing surface
Field Sheets	Field sheets for both dry weather inspection and Dry weather sampling should be available with extras
Chain of Custody Forms	To ensure proper handling of all samples
Pens/Pencils/Permanent Markers	For proper labeling
Nitrile Gloves	To protect the sampler as well as the sample from contamination
Flashlight/headlamp w/batteries	For looking in outfalls or manholes, helpful in early mornings as well
Cooler with Ice	For transporting samples to the laboratory
Digital Camera	For documenting field conditions at time of inspection
Personal Protective Equipment	Reflective vest, Safety glasses and boots at a minimum
GPS	For taking spatial location data
Water Quality Sonde	If needed, for sampling conductivity, temperature, pH
Water Quality Meter	Hand held meter, if available, for testing for various water quality parameters such as ammonia, surfactants and chlorine
Test Kits	Have extra kits on hand to sample more outfalls than are anticipated to be screened in a single day
Label Type	For labeling sample containers
Sample Containers	Make sure all sample containers are clean. Keep extra sample containers on hand at all times. Make sure

	there are proper sample containers for what is being sampled for (i.e., bacteria analysis requires sterile containers).
Pry Bar or Pick	For opening catch basins and manholes when necessary
Sandbags	For damming low flows in order to take samples
Small Mallet or Hammer	Helping to free stuck manhole and catch basin covers
Utility Knife	Multiple uses
Measuring Tape	Measuring distances and depth of flow
Safety Cones	Safety
Hand Sanitizer	Disinfectant/decontaminant
Zip Ties/Duct Tape	For making field repairs
Rubber Boots/Waders	For accessing shallow streams/areas
Sampling Pole/Dipper	For accessing hard to reach outfalls and manholes

4.4 Guidelines for Sampling Analysis

All analyses, with the exception of indicator bacteria and pollutants of concern, can be performed with field test kits or instrumentation and are not subject to 40 CFR Part 136 requirements. The following guidelines shall be used during sample analysis:

Table 4-3: Outfall Screening Sampling Parameters and Analytical Methodology

Parameter	Analytical Method	Detection Limit	Max. Hold Time	Preservative	Instrumentation (Portable Meter)	Field Test Kit
Ammonia	EPA: 350.2, SM: 4500-NH3C	0.20 mg/L	28 days	Cool ≤6°C, H_2SO_4 to pH <2, No preservative required if analyzed immediately	CHEMetrics™ V-2000 Colorimeter Hach™ DR/890 Colorimeter Hach™ Pocket Colorimeter™ II	CHEMetrics™ K-1410 CHEMetrics™ K-1510 (series) Hach™ NI-SA Hach™ Ammonia Test Strips
Surfactants	SM: 5540-C	0.10 mg/L	48 hours	Cool ≤6°C	CHEMetrics™ I-2017	CHEMetrics™ K-9400 and K-9404 Hach™ DE-2
Chlorine	SM: 4500-Cl G	0.02 mg/L	Analyze within 15 minutes	None Required	CHEMetrics™ V-2000, K-2513 Hach™ Pocket Colorimeter™ II	N/A
Temperature	SM: 2550B	N/A	Immediate	None Required	YSI Pro30 YSI EC300A Oakton 450	N/A
Specific Conductance	EPA: 120.1, SM: 2510B	0.2 µs/cm	28 days	Cool ≤6°C	CHEMetrics™ I-1200 YSI Pro30 YSI EC300A Oakton 450	N/A

Salinity	SM: 2520B	0.04 ppt	28 days	Cool ≤6°C	YSI Pro30 YSI EC300A Oakton 450	N/A
E.coli	EPA: 1603 SM: 9221B, 9221F, 9223B Other: Colilert ®, Colilert-18®	EPA: 1 cfu/100mL SM: 10 MPN/100mL Other: 1 MPN/100mL	6 hours	Cool ≤6°C, 0.0008% Na2S2O3 (sodium thiosulfate)	EPA certified laboratory procedure (40 CFR § 136)	N/A
Total Phosphorus	EPA: Manual-365.3, Automated Ascorbic acid digestion-365.1 Rev. 2, ICP/AES4-200.7 Rev. 4.4 SM: 4500-P E-F	EPA: 0.01 mg/L SM: 0.02 mg/L	28 days	Cool ≤6°C, H_2SO_4 to pH <2	EPA certified laboratory procedure (40 CFR § 136)	N/A
Dissolved Oxygen	SM: 4500-O-G	N/A	Immediate	Cool ≤6°C,	EPA certified laboratory procedure (40 CFR § 136)	N/A
BOD_5	SM: 5210B	SM: 20 mg/L	48 hours	Cool ≤6°C,	EPA certified laboratory procedure (40 CFR § 136)	N/A

EPA = EPA Methods; SM = Standard Methods

All screening data collected will be submitted each year to EPA in the Town's MS4 Annual Report.

4.5 Benchmark Criteria for Selected Parameters for Outfall Sampling

The "benchmark" criteria included in Table 4-4 will be used to assess whether a contaminant concentration is above Water Quality Standards, or in the absence of a regulatory standard, industry-accepted concentrations based on typical characteristics of surface water and wastewater. High concentrations of ammonia are typically found in wastewater, and abnormal chlorine, temperature, or specific conductance also indicates the influence of wastewater. Escherichia Coliform is an indicator of contamination from the excrement of humans and primarily used in freshwater. High concentrations of surfactants generally indicate the presence of detergents, such as from clothing or car washing.

Table 4-4: Benchmark Criteria for Outfall Sampling

Parameter	Benchmark
Ammonia-Nitrogen	>0.5 mg/L[(1)]
Specific Conductance	>2,000 μs/cm[(1)]
Escherichia Coliform	235 cfu/100mL
Surfactants	>0.25 mg/L[(1)]
Total Chlorine	>0.02 mg/L[(1)]
Fecal Coliform	400 cfu/100 mL[(1)]
Temperature	>83°F (>28.3°C) [(1)]
Dissolved Oxygen	>5.0 mg/L[(2)]
BOD_5	5 mg/L
Total Phosphorus (Charles River)	<0.1 mg/L[(3)]

(1) A placeholder has been included here based on available literature. DEP has indicated that they will be providing additional guidance regarding benchmark criteria for parameters included in Appendix G of the 2016 MS4 Permit.
(2) The TMDL for Nutrients in the Upper/Middle Charles River lists the target mean daily dissolved oxygen concentration in flowing waters as >0.5 mg/L.
(3) The TMDL for Nutrients in the Upper/Middle Charles River lists the target mean daily Total Phosphorus concentration in flowing waters as <0.1 mg/L.

The following include likely sewer input indicators:

- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
- Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and detectable levels of chlorine.

4.6 Follow-up Ranking of Outfalls and Interconnections

Following the collection and analysis of dry weather sampling results, the Town will update their outfall and interconnection ranking to reprioritize outfalls and interconnections based on information gathered during dry weather screening. For those outfalls/interconnections where relevant information was found indicating sewer input to the MS4 or sampling results indicate sewer input to the MS4, the outfalls/interconnections shall be ranked at the top of the High Priority Outfalls category for investigation. The ranking will be updated continuously as dry weather screening information becomes available, but no later than June 30, 2022.

5.0 WET WEATHER SAMPLING

The MS4 Permit requires screening and sampling of all regulated outfalls and interconnections from the MS4, which have at least one System Vulnerability Factor, during wet weather conditions for evidence of illicit discharges and SSOs by June 30, 2028. The Director of Engineering is responsible for facilitating the Town's wet weather outfall and interconnection screening and sampling efforts.

5.1 Wet Weather Criteria

Wet weather screening and sampling shall occur during or after a storm event of sufficient depth or intensity to produce a stormwater discharge at the outfall. There is no specific rainfall amount that will trigger sampling, although minimum storm event intensities that are likely to trigger sanitary sewer interconnections are preferred. Sampling during the initial period of discharge ("first flush") will be avoided. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high.

5.2 System Vulnerability Factors

For each catchment being investigated, the Town has taken into consideration relevant mapping, as well as historic plans and records, where available, to identify areas within each catchment with a higher potential for illicit connections. Information reviewed includes:

- Record drawing information related to storm drain system and sanitary sewer system construction to determine age of infrastructure and evaluate storm and sanitary sewer alignments
- Plans depicting areas of the Town's sewer system that have been investigated and any identified defects
- Health Department or other municipal data on septic system age and failures or required upgrades
- Records of complaint related to sewer system surcharging

The MS4 Permit specifically requires the Town to identify and record the presence of any of the following specific System Vulnerability Factors (SVFs):

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages;
- Common or twin-invert manholes serving storm and sanitary sewer alignments;
- Common trench construction serving both storm and sanitary sewer alignments;
- Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system;
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints;

- Areas formerly served by combined sewer systems; and
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.

EPA also recommends that the Town include the following in their consideration of System Vulnerability Factors:

- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs;
- Any sanitary sewer and storm drain infrastructure greater than 40 years old;
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance); and
- History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).

Outfalls/interconnections with a minimum of one SVF are subject to wet-weather sampling requirements.

The Town completed a review to identify areas within each catchment with higher potential for illicit connections based on the presence of SVFs that indicate a risk of sanitary or septic system inputs to the Town's MS4 under wet weather conditions. SVFs that were analyzed and their applicability to Hopedale include:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages.

   Rationale for Ranking: Hopedale has had SSO recordings in the past. Hopedale has had three (3) SSO occurrence in the five years prior to the permit effective date and since the permit became effective. The first SSO occurred on March 22, 2014 at 14 Inman Street as a result of a sewer main that was clogged by an obstruction and there was a discharge to Hopedale Pond. The second SSO occurred on December 23, 2014 on Cutler Street due to a lift station power failure and there was a discharge to Hopedale Pond. The third SSO occurred on May 2, 2017 at 4 Cutler Street due to a hole in a 6-inch force main pipe at one of the Town's sewer lift stations and there was a discharge to Hopedale Pond. All known SSOs have been isolated incidents are there are no known chronic SSOs.

2. Common or twin-invert manholes serving storm and sanitary sewer alignments.

   Rationale for Ranking: There are no known common/twin invert manholes in Hopedale.

3. Common trench construction serving both storm and sanitary sewer alignments.

   Rationale for Ranking: When sewers and drains are constructed within the same trench, cross-contamination between the two systems can occur more easily. Although this source might be

identified during dry-weather, hydraulic pressure in sewers carrying higher flows during wet-weather may increase the occurrence. Hopedale does not have any known locations in Town where sewers and drains are constructed in a common trench.

4. Crossings of storm and sanitary sewer alignments.

   Rationale for Ranking: When sewers cross through or over drains, cross-contamination between the two systems can occur more easily. Although this source might be identified during dry-weather, hydraulic pressure in sewers carrying higher flows during wet-weather may increase the occurrence. Hopedale has multiple areas in Town where the sanitary sewer crosses through or over the storm drain. The Town's storm system mapping will allow these locations to be identified.

5. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system.

   Rationale for Ranking: There are no confirmed sanitary sewer underdrains in Hopedale.

6. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints.

   Rationale for Ranking: Surcharging, overflows from sewer-to-drain, and basement backups to sump pumps are some of the most commonly identified illicit discharges.

7. Areas formerly served by combined sewer systems.

   Rationale for Ranking: There are no combined sewers in Hopedale.

8. Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.

   Rationale for Ranking: Although this source may be identified during dry-weather, surcharging or hydraulic pressure in sewers carrying higher flows during wet-weather may cause or increase the occurrence. The Town is aware of significant infiltration issues within their sanitary sewer infrastructure and is currently completing Phase 1 of investigating their sanitary system to gather data on infrastructure defects. This information will be updated as it becomes available.

9. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs.

   Rationale for Ranking: Hopedale does not have a history of SSOs related to power/equipment failures or siphon blockages.

10. Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas.

Rationale for Ranking: This source is already included in both dry-weather and "Sanitary sewer defects…" above; however, it needs to remain in the ranking in case it is the only SVF and, thus, triggers the wet-weather sampling requirement. Hopedale does have sanitary sewer and storm drain infrastructure that is greater than 40 years old in many medium to densely developed areas of town. Where age of infrastructure was unknown, the age of surrounding infrastructure was used as a surrogate.

11. Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).

    Rationale for Ranking: it is currently unknown what percentage of the Town is currently served by septic systems. The septic data for the Town has not yet been digitized, therefore not all information is available. As data becomes available, it will be incorporated into this ranking.

12. History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).

    Rationale for Ranking: Although this source might be identified during dry-weather, elevated groundwater elevations may increase the migration of pollutants from failing septic systems. As with dry weather, septic systems are lower priority than sewers due to typical location further away from drainage infrastructure. The percentage of properties within Hopedale that are served by septic systems is currently unknown. The Town's Board of Health does not have available data regarding widespread septic system failure, but will record data in the future.

Appendix E includes a table summarizing all regulated catchments within Hopedale and identifies those SVFs applicable to each catchment. This documentation shall be included in the Town's MS4 Annual Report. This inventory must be updated as additional information, including presence of common manholes, directly piped connections between storm drains and sanitary sewer infrastructure, common weir walls, sanitary sewer underdrains connections, and other structural vulnerabilities where sanitary sewer discharges could enter the storm drain system during wet weather, is obtained during catchment investigations as outlined in Section 6.0.

6.0 CATCHMENT INVESTIGATION METHODOLOGY

Each catchment, irrespective of outfall and interconnection sampling results or whether evidence of an illicit discharge is observed at the outfall, must be inspected and investigated with the exception of excluded catchments. Investigation of catchments shall proceed in accordance with the catchment ranking described in Section 3 and identified in Appendix D, with problem outfalls being investigated first. This section outlines a systematic procedure to investigate outfall catchments and identify the source(s) of potential illicit discharges. Information and data collected as part of the catchment investigations will be reported in each Annual Report.

6.1 Manhole Inspection Methodology

The MS4 Permit requires the Town to develop a storm drain network investigation that involves systematically and progressively observing, sampling and evaluating key junction manholes in the MS4 to determine the approximate location of suspected illicit discharges or SSOs. The manhole inspection methodology may either start from the outfall and work up the system or start from the upper parts of the catchment and work down the system or be a combination of both practices. Either method must, at a minimum, include an investigation of each key junction manhole within the MS4, even where no evidence of an illicit discharge is observed at the outfall.

The Highway Department will be responsible for implementing the dry weather manhole inspection program and making updates as necessary. Infrastructure information will be incorporated into the storm system map, and catchment delineations will be refined based on the field investigation, where necessary. The SVF inventory will also be updated based on information obtained during the field investigations, where necessary.

Several important terms related to the dry weather manhole inspection program are defined by the MS4 Permit as follows:

- Junction Manhole is a manhole or structure with two or more inlets accepting flow from two or more MS4 alignments. Manholes with inlets solely from private storm drains, individual catch basins, or both are not considered junction manholes for these purposes.

- Key Junction Manholes are those junction manholes that can represent one or more junction manholes without compromising adequate implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the permittee's ability to determine the possible presence of an upstream illicit discharge. A permittee may exclude a junction manhole located upstream from another located in the immediate vicinity or that is serving a drainage alignment with no potential for illicit connections.

For all regulated catchments, during dry weather, field crews will systematically inspect key junction manholes for evidence of illicit discharges and confirm or identify potential system vulnerability factors. Progressive inspection and sampling at manholes in the storm drain network will be used to isolate and eliminate illicit discharges.

The manhole inspection methodology will be conducted in one of two ways (or a combination of both):

- By working progressively up from the outfall and inspecting key junction manholes along the way, or
- By working progressively down from the upper parts of the catchment toward the outfall and inspecting key junction manholes along the way.

For most catchments, manhole inspections will proceed from the outfall moving up into the system. The decision to move up or down the system depends on the drainage system, the surrounding land use and the availability of information on the catchment and drainage system. When an illicit discharge is detected at an outfall, moving up the system can begin immediately with only a map of the storm drain system. Moving down the system requires more advance preparation and reliable drainage system information on the upstream segments of the storm drain system, but may be more efficient if the sources of illicit discharges are believed to be located in the upstream portions of the catchment area. Once a manhole inspection methodology has been selected, investigations will continue systematically through the catchment.

Inspection of key junction manholes will proceed as follows:

- During a dry weather period, manholes will be opened and inspected for visual and olfactory evidence of illicit connections (e.g. excrement, toilet paper, gray filamentous bacterial growth, or sanitary products present). A sample field inspection form is provided in Appendix G.

- For structures observed to have dry-weather flow, the estimated quantity and visual characteristics such as color, odor, solids, or turbidity will also be documented. In key locations observed to have dry-weather flow, grab samples will be collected and analyzed at a minimum for ammonia, chlorine, and surfactants with test kits. Additional indicator sampling may also be used to assist in determining potential sources.

- Where sampling results or visual or olfactory evidence indicate potential illicit discharges, the area draining to the junction manhole will be flagged for further upstream manhole investigation and/or isolation and confirmation of sources. Further investigation of the drainage system will be stopped until such time as all illicit discharges to that drain segment are identified and removed, and repeat investigation shows no further evidence of contaminated dry-weather flow. If there is no dry-weather flow captured, or if sample results indicate contaminant concentrations below benchmark criteria, the investigation will proceed to the next drain segment downstream.

- Subsequent key junction manhole inspections will proceed until the location of suspected illicit discharges can be isolated to a pipe segment between two manholes.

- If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon completion of key junction manhole sampling assuming that wet weather sampling has already been completed at the outfall serving the catchment area.

During investigations, pipe connectivity will be updated as needed, and catchment delineations will be refined.

6.2 Source Isolation and Confirmation

Once the source of an illicit discharge is approximated between two manholes, more detailed investigation techniques will be used to isolate and confirm the source of the illicit discharge. The following methods may be used in isolating and confirming the source of illicit discharges:

- Sandbagging
- Dye Testing
- ZoomCam Inspections
- Smoke Testing
- CCTV/Video Inspections

Public notification is an important aspect of a detailed source investigation program. Prior to smoke testing, dye testing, or any TV inspections, the Highway Department will notify property owners in the impacted area. For smoke testing, notices will be distributed to each property in advance of smoke testing and at the conclusion of smoke testing to inform property owners that the work is complete. Advertisements will also be placed in the local newspaper and a pre-smoke testing meeting will be held with stakeholders, and a telephone information line will be set up for property owners to call. For dye testing, in order to secure the right to enter private property in the project area in order to perform the dye testing, a letter will be mailed to property/business owners and residents for this purpose.

The scope of field investigation in support of Hopedale's IDDE Plan will be determined based on site-specific factors for each individual outfall including, but not limited to factors such as the size, density, and land uses in the tributary drainage area; the configuration, diameters, and total footage of drain pipe in the tributary area; the specific pollutants identified during monitoring; and other potential environmental influences.

The field investigation methods to be utilized include, but are not limited to the following, and may be utilized in combination:

- Sandbagging: If no flow is observed at a particular junction manhole or key junction manhole at the time of inspection, the drain segment in the area of concern can be isolated by placing sandbags within outlets to manholes to form a temporary dam that collects any intermittent flow for a 24 to 48-hour dry weather period to determine if any intermittent dry-weather flow is present. If intermittent flow is captured, grabs samples will be collected and analyzed at a minimum for ammonia, chlorine, and surfactants. If it is determined that no flow is captured behind the sand bag after a 24 to 48-hour period, the tributary drainage pipes can be excluded as the source of any intermittent discharge.
- Dyed-water Testing: For any connections that could not be visually confirmed in the field (i.e. to a nearby catch basin), follow-up dye testing will be conducted of plumbing fixtures in neighboring homes and buildings in an effort to confirm the source of the unknown connection.

Dyed water tests will consist of pouring dyed-water into plumbing fixtures and observing the sanitary sewer and drainage system downstream in an attempt to confirm connection.

- ZoomCam Inspection: In selected tributary areas, or where indicated based on findings from other field investigation work, drainage structures will be inspected with a "zoom camera-on-a-stick" in an attempt to gather additional information and narrow the location of observed dry-weather flow.
- Smoke Testing of Drains: Smoke testing may be utilized in selected areas in an attempt to locate illicit connections. Smoke testing will consist of the introduction of a non-toxic smoke into drainage segments containing suspected illicit discharges and observing adjacent buildings for signs of illicit connections (e.g., smoke emanating from sewer vent stacks, floor drains, and cleanouts). Smoke testing is a relatively inexpensive method of locating illicit connections to the storm drain system. Once smoke testing is complete, follow-up dye testing should again be conducted to confirm the nature of suspected connections by pouring dyed water into a suspected illicit connection (location of the smoke leak) and observing the surrounding storm drain system for the presence of the dye.
- Television Inspection of Drains: In small tributary areas, or as confirmation of findings from other field investigation work, drain pipes will be internally inspected to pinpoint and evaluate connections. Television inspection will consist of passing a closed-circuit television camera through all or a portion of the drain segments containing suspected illicit connections.

Records of on-going and proposed field investigations are included in Appendix H of this Plan. Hopedale will keep these records updated as IDDE field investigations are implemented.

6.3 Illicit Discharge Removal

Upon location of an illicit discharge, the Town will work to eliminate the illicit discharge as expeditiously as possible. When the specific source of an illicit discharge is identified, the Town of Hopedale will exercise its authority as necessary to require its removal. The Town will notify all responsible parties of any such discharge and require immediate cessation of improper disposal practices in accordance with its legal authorities.

6.3.1 Illicit Discharges under Municipal Responsibility

The Town will undertake corrective action for illicit discharges under municipal responsibility by securing qualified construction contractors in accordance with federal, state, and local procurement laws/regulations in the event that the Town is unable to perform the work themselves. Removal will be accomplished as soon as practical based on the scope and cost of the removal effort, and available resources. Where elimination of an illicit discharge within 60 days of its identification is not possible, the Town will establish an expeditious schedule for its elimination and report the dates of identification and schedule for removal in the Town's MS4 Annual Report. In the interim, the Town will also take all reasonable and prudent measures to minimize the discharge of pollutants to and from its MS4.

6.3.2 Illicit Discharge under Non-Municipal Responsibility

The Town will undertake removal of illicit discharges under non-municipal responsibility through the Town's bylaw via prohibitions against illicit connections and provisions detailing legal authority for enforcement. Owners of private property will allow the Town's agents, officers, and employees to enter the privately owned property for the purpose of performing their duties under the Town's bylaw. The following enforcement steps may result from the findings::

- Written Order: The Highway Department or its authorized Agent may issue a written order to enforce the provisions of the bylaw, which may include: (a) elimination of illicit connections or discharges to the municipal separate storm sewer system; (b) performance of monitoring, analyses, and reporting; (c) that unlawful discharges, practices, or operations shall cease and desist; and (d) remediation of contamination in connection therewith.
- If the enforcing person determines that abatement or remediation of contamination is required, the order shall set forth a deadline by which such abatement or remediation must be completed. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town of Hopedale may, at its option, undertake such work, and expenses thereof shall be charged to the violator.
- Within 30 days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner will be notified of the costs incurred by the Town, including administrative costs. The violator or property owner may file a written request objecting to the amount or basis of costs with the department within 30 days of the receipt of the notification of the costs incurred. If the amount due is not received by the expiration of the time in which to file a protest or within 30 days following a decision of the department affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in M.G.L. Chapter 59 Section 57 after the thirty-first day at which the costs first become due.

As investigations proceed, a list of illicit discharges identified and removed will be tracked in Appendix J. The Town will maintain an updated list of illicit discharges identified and removed. The Town's Annual Report will include the status of IDDE investigation and removal activities including the following information for each confirmed source:

- The location of the discharge and its source(s);
- A description of the discharge;
- The method of discovery;
- Date of discovery;
- Date of elimination, mitigation or enforcement action or planned corrective measures and a schedule for completing the illicit discharge removal; and
- Estimate of the volume of flow removed.

Within one (1) year of removal of all identified illicit discharges and SSO sources within a catchment area, confirmatory outfall or interconnection screening will be conducted. The confirmatory screening will be conducted in dry weather unless System Vulnerability Factors have been identified, in which case

both dry weather and wet weather confirmatory screening will be conducted. If confirmatory screening indicates evidence of additional illicit discharges, the catchment will be scheduled for additional investigation. Confirmatory screening is not required in catchments where no illicit discharges or System Vulnerability Factors were identified, and no previous screening indicated suspicious flows.

6.4 Ongoing Screening Results and Follow-Up Catchment Ranking

Upon completion of all catchment investigations, and illicit discharge removal and confirmation where necessary, each outfall or interconnection will be reprioritized for screening in accordance with the ranking criteria outlined in Section 3.2 and scheduled for ongoing screening once every five years. Ongoing screening shall consist of dry weather screening and sampling consistent with Section 4.0. Wet weather screening and sampling will also be required at outfalls where wet weather screening was required due to SVFs in accordance with Section 5.0. All sampling results will be reported in the Town's MS4 Annual Report.

7.0 MUNICIPAL EMPLOYEE TRAINING

Training on the IDDE Program, including how to recognize illicit discharges and SSOs, will be provided to municipal employees involved in the implementation of the program on an annual basis. Additional training specific to the functions of particular personnel and their role within the framework of the IDDE program may also be provided. Training materials utilized, the dates on which training was held, and staff that attended each training will be maintained in Appendix K. The Town will report annually on the frequency and type of employee training in the MS4 Annual Report submitted to EPA.

8.0 REPORTING

The progress and success of the IDDE program will be evaluated on an annual basis. The success of the IDDE program will be measured by the IDDE activities completed within the required permit timelines. The evaluation will be documented in the Town's Annual Report and will include the following indicators of program progress:

- Measures that demonstrate efforts to locate illicit discharges.
- Number of SSOs and illicit discharges identified and removed.
- Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure.
- Number of dry weather outfall inspections/screenings.
- Number of wet weather outfall inspections/sampling events.
- Number of enforcement notices issued.
- All dry weather and wet weather screening and sampling results.
- Estimate of the volume of sewage removed, as applicable.
- Number of employees trained annually.

9.0 REFERENCES

Central Massachusetts Regional Stormwater Coalition and Fuss & O'Neill. Illicit Discharge and Detection Plan (IDDE) Template. June 30, 2016.

United States Environmental Protection Agency. General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts. Issue date: April 4, 2016. Effective date: July 1, 2018. Modification date: November 7, 2018.

APPENDIX A

Town-wide Drainage Map

MILFORD

MENDON

N

475 0 475

Scale In Feet

Legend

Stormwater System

- Catch Basin
- Other Drain Structure
- Manhole
- Regulated Outfall
- Regulated Assumed Outfall
- Interconnection
- Outfall (Not Regulated)
- Assumed Outfall (Not Regulated)
- Abandoned Outfall
- Gravity Main
- Culvert
- Open Trench
- Under Drain
- Detention Basin
- Catchment
- Regulated Catchment

Basemap

- Basemap
- Town Boundary
- Parcel
- Building
- Streams
- Marsh/Bog
- Wooded marsh
- Open Water

TOWN OF HOPEDALE, MASSACHUSETTS

STORMWATER COLLECTION SYSTEM

JUNE 2020 SCALE: NOTED

Weston & Sampson SM

APPENDIX B

SSO Inventory

HOPEDALE IDDE PLAN

APPENDIX C

DRAFT IDDE Bylaw

Appendix D

Catchment Assessment and Priority Ranking Matrix

HOPEDALE, MA
CATCHMENT PRIORITIZATION AND RANKING MATRIX

Outfall ID	Regulated	Location	Receiving Water	Outfall Diameter (in.)	Outfall Pipe Material	Latitude	Longitude	Subbasin (GIS)	Illicit Discharge Related Water Quality Impairments in Receiving Water?	Ranking Criteria																			Dry Weather Ranking	MS4 Permit Ranking
										Undeveloped Area	Athletic Fields/Parks/ Green Space w/o Services	Cross Country through undeveloped areas	Known/Suspected Illicits	Sampling Prior to 2016 Permit Effective Date shows Sewer Input	Discharge to Drinking Water Source (Class A Water)	Discharge to Swimming Area/ Other Contact Recreation (Class B Water)	Approved TMDL for Bacteria	Approved TMDL for Phosphorus	Discharge Complaints	Water Quality Limited Water for Phosphorus	Poor Receiving Water Quality	Infrastructure > 40 years old	Septic Systems > 30 years old	Septic to Sewer	Culverted Streams	Density of Generating Sites	Other Relevant Factors	2016 MS4 Sampling shows Sewer Input		
										0	0	0	500	300	200	100	100	25	25	15	10	7	6	5	4	3	TBD	75		
OF-01	Yes	1 FIELDSTONE WAY	CHARLES RIVER	18	RCP	-71.50234	42.107986	Charles									100	25			10	7							142	High Priority
OF-10	Yes	34 LARKIN LN	UNNAMED WETLAND	24	RCP	-71.516799	42.118671	Charles									100												100	High Priority
OF-100	Yes	9 FRANCIS RD	MILL RIVER	<Null>	<Null>	-71.522856	42.102696	Blackstone													10	7							17	Low Priority
OF-101	Yes	21 BEN`S WY	MILL RIVER	<Null>	<Null>	-71.525407	42.107303	Blackstone													10	7							17	Low Priority
OF-103	<Null>	12 OAK VIEW LN	<Null>	<Null>	RCP	-71.528988	42.127837	Charles									100					7							107	High Priority
OF-104	Yes	1 FITZGERALD DR	MILL RIVER	24	VCP	-71.54257	42.127597	Blackstone													10	7							17	Low Priority
OF-105	<Null>	7 ROBERTSON DR	<Null>	<Null>	<Null>	-71.548754	42.143231	Blackstone														7							7	Low Priority
OF-106	Yes	14 TILLOTSON RD	UNNAMED WETLAND	<Null>	RCP	-71.552527	42.129235	Blackstone																					0	Low Priority
OF-107	Yes	10 ADJ MOORE RD	UNNAMED WETLAND	<Null>	RCP	-71.553208	42.129516	Blackstone																					0	Low Priority
OF-108	<Null>	2 FITZGERALD DR	<Null>	<Null>	<Null>	-71.542708	42.124679	Blackstone														7							7	Low Priority
OF-109	Yes	14 REAR PIERCE ST	MILL RIVER	6	PVC	-71.536799	42.12432	Blackstone													10	7							17	Low Priority
OF-11	Yes	29 HARMONY TR	UNNAMED WETLAND	24	RCP	-71.518027	42.120086	Charles									100												100	High Priority
OF-110	Yes	13 RICHARD RD	MILL RIVER	<Null>	<Null>	-71.52314	42.105538	Blackstone													10	7							17	Low Priority
OF-111	Yes	26 ANTHONY RD	MILL RIVER	<Null>	<Null>	-71.516104	42.101658	Blackstone													10	7							17	Low Priority
OF-112	Yes	14 ANTHONY RD	MILL RIVER	<Null>	<Null>	-71.51988	42.103376	Blackstone													10	7							17	Low Priority
OF-113	<Null>	1 MELLEN ST	<Null>	<Null>	<Null>	-71.512337	42.109883	Blackstone														7							7	Low Priority
OF-114	Yes	84 PLAIN ST	UNNAMED WETLAND	<Null>	<Null>	-71.513761	42.109163	Blackstone														7							7	Low Priority
OF-115	<Null>	7 WARFIELD ST	<Null>	<Null>	<Null>	-71.510431	42.110821	Blackstone														7							7	Low Priority
OF-116	Yes	21 WARFIELD ST	CHARLES RIVER	12	RCP	-71.508104	42.109101	Blackstone									100	25			10	7							142	High Priority
OF-117	<Null>	5 BUSINESS WY	UNNAMED WETLAND	<Null>	<Null>	-71.50732	42.104817	Blackstone														7							7	Low Priority
OF-118	<Null>	3 CHARLESVIEW RD	<Null>	<Null>	<Null>	-71.502582	42.103698	Charles									100					7							107	High Priority
OF-119	<Null>	3 CHARLESVIEW RD	<Null>	<Null>	<Null>	-71.502644	42.103895	Charles									100					7							107	High Priority
OF-12	Yes	29 LARKIN LN	UNNAMED WETLAND	36	RCP	-71.517279	42.117714	Charles																					0	Low Priority
OF-120	<Null>	3 CHARLESVIEW RD	<Null>	<Null>	<Null>	-71.502665	42.104001	Charles									100					7							107	High Priority
OF-121	Yes	16 HERON LN	UNNAMED STREAM	24	RCP	-71.525471	42.119801	Blackstone																					0	Low Priority
OF-122	<Null>	146 MENDON ST	MILL RIVER	24	RCP	-71.538894	42.12464	Blackstone													10	7							17	Low Priority
OF-123	Yes	3 STEEL RD	UNNAMED WETLAND	30	RCP	-71.531901	42.133076	Charles									100					7							107	High Priority
OF-124	Yes	1 FITZGERALD DR	MILL RIVER	<Null>	<Null>	-71.543052	42.127888	Blackstone													10	7							17	Low Priority
OF-125	Yes	7 CUTLER ST	HOPEDALE POND	<Null>	<Null>	-71.553193	42.142579	Blackstone													10	7							17	Low Priority
OF-126	Yes	142 FREEDOM ST	HOPEDALE POND	<Null>	<Null>	-71.549574	42.134125	Blackstone													10	7							17	Low Priority
OF-127	<Null>	196 FREEDOM ST	<Null>	<Null>	<Null>	-71.558364	42.134211	Blackstone														7							7	Low Priority
OF-128	Yes	7 ADJ MOORE RD	UNNAMED WETLAND	<Null>	<Null>	-71.557837	42.134144	Blackstone																					0	Low Priority
OF-129	Yes	99 MILL ST	SPINDLEVILLE POND	8	PVC	-71.52996	42.115343	Blackstone														7							7	Low Priority
OF-13	Yes	5 COUNTRY CLUB LN	UNNNAMED WETLAND	12	RCP	-71.521453	42.120097	Charles									100					7							107	High Priority
OF-130	Yes	99 MILL ST	SPINDLEVILLE POND	12	CMP	-71.529953	42.115482	Blackstone																					0	Low Priority
OF-131	<Null>	154 MILL ST	<Null>	8	RCP	-71.535003	42.112039	Blackstone														7							7	Low Priority
OF-132	<Null>	8 ROSENFELD DR	<Null>	<Null>	<Null>	-71.51801	42.105173	Blackstone														7							7	Low Priority
OF-133	Yes	44 PLAIN ST	UNNAMED WETLAND	<Null>	<Null>	-71.515183	42.112979	Blackstone														7							7	Low Priority
OF-134	<Null>	6 CONDON WAY	MILL RIVER	<Null>	<Null>	-71.516568	42.103866	Blackstone													10	7							17	Low Priority
OF-135	Yes	2 CONDON WAY	MILL RIVER	<Null>	<Null>	-71.51575	42.103347	Blackstone													10	7							17	Low Priority
OF-136	Yes	2 AIRPORT DRIVE	<Null>	<Null>	<Null>	-71.512858	42.106177	Blackstone														7							7	Low Priority
OF-137	<Null>	16 AIRPORT RD	<Null>	<Null>	<Null>	-71.510975	42.103015	Blackstone														7							7	Low Priority
OF-138	<Null>	5 HOWARD ST	<Null>	<Null>	<Null>	-71.506824	42.115364	Charles			X						100					7							107	High Priority
OF-139	<Null>	207 MENDON ST	<Null>	<Null>	<Null>	-71.541768	42.122369	Blackstone														7							7	Low Priority
OF-14	<Null>	2 LARKIN LN	<Null>	18	UNK	-71.523953	42.117224	Blackstone																					0	Low Priority
OF-140	<Null>	154 MENDON ST	MILL RIVER	<Null>	<Null>	-71.541635	42.122235	Blackstone													10	7							17	Low Priority
OF-141	Yes	58 MELLEN ST	CHARLES RIVER	<Null>	<Null>	-71.501734	42.116849	Charles									100	25			10	7							142	High Priority
OF-142	<Null>	4 LLOYD ST	<Null>	<Null>	<Null>	-71.504611	42.113599	Charles									100					7							107	High Priority
OF-143	<Null>	54 ADIN ST	<Null>	<Null>	<Null>	-71.537736	42.131724	Blackstone		X												7							7	Low Priority
OF-144	Yes	161 FREEDOM ST	HOPEDALE POND	<Null>	<Null>	-71.55356	42.134524	Blackstone													10	7							17	Low Priority
OF-145	<Null>	190 HOPEDALE ST	<Null>	<Null>	<Null>	-71.53434	42.123425	Blackstone														7							7	Low Priority
OF-146	Yes	208 HOPEDALE ST	MILL RIVER	<Null>	<Null>	-71.533103	42.12215	Blackstone													10	7							17	Low Priority
OF-147	<Null>	102 GREENE ST	<Null>	<Null>	<Null>	-71.530315	42.120499	Blackstone														7							7	Low Priority
OF-148	Yes	90 MILL ST	MILL RIVER	<Null>	<Null>	-71.522972	42.115333	Blackstone		X	X										10	7							17	Low Priority
OF-149	<Null>	73 MILL ST	<Null>	<Null>	<Null>	-71.524522	42.115366	Blackstone														7							7	Low Priority
OF-15	YES	11 HERON LN	<Null>	24	RCP	-71.5254	42.120083	Blackstone																					0	Low Priority
OF-16	Yes	5 FOREST PT	UNNAMED WETLAND	30	RCP	-71.528535	42.118765	Blackstone																					0	Low Priority
OF-17	<Null>	5 FOREST PT	<Null>	18	RCP	-71.528694	42.118659	Blackstone																					0	Low Priority
OF-18	<Null>	5 FOREST PT	<Null>	24	RCP	-71.52848	42.118283	Blackstone																					0	Low Priority
OF-19	<Null>	11 GANNETT WY	<Null>	24	RCP	-71.52828	42.121559	Blackstone																					0	Low Priority
OF-2	Yes	38 HARMONY TR	UNNAMED WETLAND	12	RCP	-71.515227	42.118442	Charles									100												100	High Priority
OF-20	<Null>	4A ROCKRIDGE RD	UNNAMED WETLAND	24	RCP	-71.524646	42.125372	Charles									100												100	High Priority
OF-21	<Null>	1 MANTONI DR	<Null>	12	RCP	-71.534795	42.112523	Blackstone														7							7	Low Priority
OF-22	Yes	99 MILL ST	SPINDLEVILLE POND	18	RCP	-71.530866	42.116437	Blackstone														7							7	Low Priority
OF-24	Yes	2 OAK VIEW LN	UNNAMED WETLAND	12	RCP	-71.527278	42.125852	Blackstone														7							7	Low Priority
OF-25	Yes	2 OAK VIEW LN	UNNAMED WETLAND	12	RCP	-71.527084	42.12588	Blackstone														7							7	Low Priority
OF-26	Yes	2 OAK VIEW LN	UNNAMED WETLAND	12	RCP	-71.527555	42.125725	Blackstone														7							7	Low Priority
OF-27	<Null>	10 SPRUCE CR	UNNAMED WETLAND	18	RCP	-71.531146	42.124622	Blackstone														7							7	Low Priority
OF-28	Yes	16 GREENE ST	UNNAMED WETLAND	15	RCP	-71.526074	42.127025	Charles									100					7							107	High Priority
OF-29	Yes	2 OAK VIEW LN	UNNAMED WETLAND	<Null>	UNK	-71.527112	42.125802	Blackstone														7							7	Low Priority
OF-3	Yes	38 HARMONY TR	<Null>	24	RCP	-71.515079	42.118065	Charles									100												100	High Priority
OF-30	Yes	12 ADJ PATRICK RD	UNNAMED WETLAND	27	RCP	-71.544414	42.123005	Blackstone																					0	Low Priority
OF-31	Yes	12 ADJ PATRICK RD	UNNAMED WETLAND	12	RCP	-71.544301	42.123243	Blackstone																					0	Low Priority
OF-32	<Null>	15 PATRICK RD	UNNAMED WETLAND	18	RCP	-71.543669	42.123118	Blackstone																					0	Low Priority
OF-33	Yes	55 ADJ WESTCOTT RD	UNNAMED WETLAND	27	RCP	-71.54896	42.127775	Blackstone																					0	Low Priority
OF-34	Yes	10 ADJ MOORE RD	UNNAMED WETLAND	<Null>	RCP	-71.55206	42.127508	Blackstone																					0	Low Priority
OF-35	Yes	7 WHITNEY RD	UNNAMED STREAM	15	RCP	-71.555704	42.132252	Blackstone																					0	Low Priority
OF-36	Yes	27 DRIFTWAY	HOPEDALE POND	28	CMP	-71.554263	42.144793	Blackstone													10	7							17	Low Priority
OF-37	Yes	69 JONES RD	UNNAMED STREAM	42	RCP	-71.545584	42.141212	Blackstone														7							7	Low Priority

HOPEDALE, MA
CATCHMENT PRIORITIZATION AND RANKING MATRIX

Outfall ID	Regulated	Location	Receiving Water	Outfall Diameter (in.)	Outfall Pipe Material	Latitude	Longitude	Subbasin (GIS)	Illicit Discharge Related Water Quality Impairments in Receiving Water?	Ranking Criteria																			Dry Weather Ranking	MS4 Permit Ranking
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										0	0	0	500	300	200	100	100	25	25	15	10	7	6	5	4	3	TBD	75		
OF-38	Yes	33 INMAN ST	UNNAMED STREAM	30	RCP	-71.546427	42.140661	Blackstone														7							7	Low Priority
OF-39	Yes	14 REAR PIERCE ST	MILL RIVER	18	RCP	-71.536357	42.124554	Blackstone													10	7							17	Low Priority
OF-4	Yes	1 LIBERTY CR	UNNAMED WETLAND	30	RCP	-71.515306	42.11791	Charles									100												100	High Priority
OF-40	Yes	162 DUTCHER ST	HOPEDALE POND	30	VCP	-71.545158	42.136259	Blackstone													10	7							17	Low Priority
OF-41	Yes	162 DUTCHER ST	HOPEDALE POND	12	CMP	-71.545102	42.136049	Blackstone													10	7							17	Low Priority
OF-42	Yes	162 DUTCHER ST	HOPEDALE POND	8	VCP	-71.544384	42.135375	Blackstone													10	7							17	Low Priority
OF-43	Yes	162 DUTCHER ST	HOPEDALE POND	<Null>	<Null>	-71.544296	42.135296	Blackstone													10	7							17	Low Priority
OF-44	Yes	162 DUTCHER ST	HOPEDALE POND	12	VCP	-71.544241	42.135066	Blackstone													10	7							17	Low Priority
OF-45	Yes	12 HOPEDALE ST	HOPEDALE POND	<Null>	<Null>	-71.544114	42.133413	Blackstone			X										10	7							17	Low Priority
OF-46	Yes	12 HOPEDALE ST	HOPEDALE POND	<Null>	<Null>	-71.544273	42.133289	Blackstone			X										10	7							17	Low Priority
OF-47	Yes	21 LAKE ST	HOPEDALE POND	<Null>	<Null>	-71.545379	42.133796	Blackstone			X										10	7							17	Low Priority
OF-48	Yes	21 LAKE ST	HOPEDALE POND	<Null>	<Null>	-71.5453	42.134403	Blackstone			X										10	7							17	Low Priority
OF-49	Yes	21 LAKE ST	HOPEDALE POND	<Null>	<Null>	-71.545364	42.134901	Blackstone			X										10	7							17	Low Priority
OF-5	Yes	38 HARMONY TR	<Null>	30	RCP	-71.515168	42.118249	Charles									100												100	High Priority
OF-50	Yes	19 LAKE ST	HOPEDALE POND	<Null>	<Null>	-71.546367	42.13501	Blackstone													10	7							17	Low Priority
OF-51	Yes	21 LAKE ST	HOPEDALE POND	<Null>	<Null>	-71.545271	42.133681	Blackstone			X										10	7							17	Low Priority
OF-52	<Null>	20 LAKE ST	HOPEDALE POND	<Null>	<Null>	-71.546615	42.134491	Blackstone													10	7							17	Low Priority
OF-53	<Null>	24 HOPEDALE ST	<Null>	<Null>	<Null>	-71.545408	42.13127	Blackstone														7							7	Low Priority
OF-54	<Null>	85 FREEDOM ST	HOPEDALE POND	<Null>	<Null>	-71.545273	42.13269	Blackstone													10	7							17	Low Priority
OF-55	Yes	162 DUTCHER ST	HOPEDALE POND	<Null>	<Null>	-71.544779	42.133034	Blackstone													10	7							17	Low Priority
OF-56	Yes	12 HOPEDALE ST	HOPEDALE POND	<Null>	<Null>	-71.544495	42.133181	Blackstone			X										10	7							17	Low Priority
OF-57	Yes	85 FREEDOM ST	HOPEDALE POND	<Null>	<Null>	-71.544719	42.132957	Blackstone													10	7							17	Low Priority
OF-59	<Null>	10 STEEL RD	<Null>	18	RCP	-71.535872	42.133758	Blackstone														7							7	Low Priority
OF-6	<Null>	245 SOUTH MAIN ST	<Null>	18	CMP	-71.51362	42.116715	Charles									100					7							107	High Priority
OF-60	<Null>	18 STEEL RD	<Null>	18	RCP	-71.538262	42.135375	Blackstone														7							7	Low Priority
OF-61	<Null>	128 DUTCHER ST	HOPEDALE POND	18	VCP	-71.547056	42.138519	Blackstone													10	7							17	Low Priority
OF-62	<Null>	59 JONES RD	<Null>	<Null>	<Null>	-71.546898	42.141797	Blackstone														7							7	Low Priority
OF-63	<Null>	194 DUTCHER ST	<Null>	12	RCP	-71.549923	42.142566	Blackstone														7							7	Low Priority
OF-64	<Null>	7 ROBERTSON DR	<Null>	12	RCP	-71.54889	42.143412	Blackstone														7							7	Low Priority
OF-65	Yes	218 DUTCHER ST	UNNAMED STREAM	<Null>	RCP	-71.55218	42.144376	Blackstone														7							7	Low Priority
OF-66	<Null>	1 CUTLER ST	HOPEDALE POND	12	RCP	-71.553451	42.143271	Blackstone													10	7							17	Low Priority
OF-67	Yes	222 DUTCHER ST	<Null>	<Null>	RCP	-71.552417	42.145023	Blackstone														7							7	Low Priority
OF-68	<Null>	110 ADIN ST	<Null>	36	RCP	-71.529429	42.131714	Charles									100					7							107	High Priority
OF-7	Yes	7 HAVEN WY	<Null>	24	RCP	-71.517792	42.121546	Charles									100												100	High Priority
OF-70	Yes	2B CENTENNIAL ST	<Null>	12	RCP	-71.537961	42.130746	Blackstone														7							7	Low Priority
OF-71	Yes	80 BANCROFT PK	UNNAMED STREAM	6	VCP	-71.546573	42.128694	Blackstone														7							7	Low Priority
OF-72	Yes	16 DEPOT ST	MILL RIVER	<Null>	<Null>	-71.538731	42.126342	Blackstone													10	7				3			20	Low Priority
OF-73	Yes	1 FITZGERALD DR	MILL RIVER	8	PVC	-71.540031	42.125617	Blackstone													10	7							17	Low Priority
OF-74	<Null>	150 MENDON ST	UNNAMED STREAM	<Null>	<Null>	-71.538941	42.124609	Blackstone														7							7	Low Priority
OF-75	Yes	33 ADJ HAMMOND RD	UNNAMED STREAM	<Null>	<Null>	-71.543971	42.125039	Blackstone																					0	Low Priority
OF-76	Yes	33 ADJ HAMMOND RD	UNNAMED STREAM	12	RCP	-71.544851	42.124897	Blackstone																					0	Low Priority
OF-77	<Null>	12 ADJ PATRICK RD	UNNAMED WETLAND	18	RCP	-71.546727	42.123955	Blackstone																					0	Low Priority
OF-78	Yes	19 WESTCOTT RD	UNNAMED STREAM	<Null>	RCP	-71.546922	42.122364	Blackstone																					0	Low Priority
OF-79	Yes	9 GASKILL CR	MILL RIVER	<Null>	<Null>	-71.54822	42.128026	Blackstone													10								10	Low Priority
OF-8	<Null>	6 HAVEN WY	<Null>	24	RCP	-71.517954	42.121253	Charles									100												100	High Priority
OF-80	<Null>	10 ADJ MOORE RD	UNNAMED WETLAND	24	RCP	-71.55644	42.12962	Blackstone																					0	Low Priority
OF-81	<Null>	5 MOORE RD	UNNAMED STREAM	30	RCP	-71.55427	42.130065	Blackstone																					0	Low Priority
OF-82	Yes	66 WESTCOTT RD	UNNAMED STREAM	<Null>	<Null>	-71.552651	42.132289	Blackstone																					0	Low Priority
OF-83	<Null>	183 FREEDOM ST	UNNAMED STREAM	<Null>	RCP	-71.558947	42.133522	Blackstone														7							7	Low Priority
OF-84	<Null>	207 MENDON ST	<Null>	<Null>	<Null>	-71.541745	42.122381	Blackstone														7							7	Low Priority
OF-85	<Null>	1 LAURELWOOD DR	SPINDLEVILLE POND	<Null>	<Null>	-71.531938	42.114973	Blackstone														7							7	Low Priority
OF-86	Yes	147 GREENE ST	SPINDLEVILLE POND	18	RCP	-71.531746	42.117151	Blackstone														7							7	Low Priority
OF-87	<Null>	137 GREENE ST	MILL RIVER	12	RCP	-71.5335	42.118671	Blackstone													10	7							17	Low Priority
OF-88	Yes	114 GREENE ST	UNNAMED STREAM	18	RCP	-71.532184	42.119945	Blackstone														7							7	Low Priority
OF-89	Yes	111 GREENE ST	UNNAMED WETLAND	12	CMP	-71.531975	42.120542	Blackstone														7							7	Low Priority
OF-9	<Null>	6 HAVEN WY	<Null>	24	RCP	-71.518428	42.1212	Charles									100												100	High Priority
OF-90	Yes	208 HOPEDALE ST	UNNAMED WETLAND	<Null>	<Null>	-71.532175	42.121019	Blackstone														7							7	Low Priority
OF-91	Yes	208 HOPEDALE ST	UNNAMED WETLAND	12	RCP	-71.532723	42.121688	Blackstone														7							7	Low Priority
OF-92	<Null>	194 HOPEDALE ST	MILL RIVER	30	CMP	-71.533865	42.12302	Blackstone													10	7							17	Low Priority
OF-93	Yes	146 MENDON ST	MILL RIVER	18	RCP	-71.536113	42.123384	Blackstone													10	7							17	Low Priority
OF-94	Yes	90 MENDON ST	UNNAMED STREAM	24	RCP	-71.530686	42.126706	Charles									100					7							107	High Priority
OF-95	<Null>	80 GREENE ST	<Null>	8	CMP	-71.529152	42.122873	Blackstone														7							7	Low Priority
OF-96	<Null>	41 GREENE ST	<Null>	18	CMP	-71.527204	42.125183	Blackstone														7							7	Low Priority
OF-98	<Null>	4 CHARLESVIEW RD	CHARLES RIVER	<Null>	<Null>	-71.501638	42.104392	Charles									100	25			10	7							142	High Priority
OF-99	<Null>	150 HARTFORD AV	CHARLES RIVER	<Null>	<Null>	-71.501868	42.103165	Charles									100	25			10	7							142	High Priority

Appendix E

Chain of Custody Forms for Laboratory Sampling Analysis

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Company Name:
Address:
Phone:
Project Name:
Project Location:
Project Number:
Project Manager:
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By:

Requested Turnaround Time			
7-Day	☐	10-Day	☐
PFAS 10-Day (std)	☐	Due Date:	

Rush-Approval Required			
1-Day	☐	3-Day	☐
2-Day	☐	4-Day	☐

Dissolved Metals Samples	
○	Field Filtered
○	Lab to Filter

Orthophosphate Samples	
○	Field Filtered
○	Lab to Filter

Data Delivery			
Format:	PDF	☐	EXCEL ☐
Other:			
CLP Like Data Pkg Required:	☐		
Email To:			
Fax To #:			

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE

[2] Preservation Code

Courier Use Only

Total Number Of:

VIALS_____
GLASS_____
PLASTIC_____
BACTERIA_____
ENCORE_____

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

*Contest is not responsible for missing samples from prepacked coolers

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)
_____

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)
_____

Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments:

Detection Limit Requirements	
MA	
CT	
Other:	

Special Requirements	
☐	MA MCP Required
	MCP Certification Form Required
☐	CT RCP Required
	RCP Certification Form Required
☐	MA State DW Required
PWSID #	

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Project Entity

Government	☐	Municipality	☐	MWRA	☐	WRTA	☐
Federal	☐	21 J	☐	School	☐		
City	☐	Brownfield	☐	MBTA	☐		

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Lab Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Con-Test values your partnership on each project and will try to assist with missing information, but will not be held accountable.

Appendix F

Catchment System Vulnerability Factor Inventory

TOWN OF HOPEDALE, MA
SVF TABLE

Outfall ID	Receiving Water	Eventual Recieving Water	History of SSOs	Common or Twin Invert Manholes	Common Trench Construction	Storm/ Sanitary Crossings	Sanitary Lines with Underdrains	Inadequate LOS	Former Combined Sewers	Sanitary Sewer Defects	SSO Potential in Event of System Failures	Sanitary and Storm Drain Infrastructure > 40 years	History of Board of Health Actions Addressing Septic Failure	Wet Weather Sampling Required?
OF-01	UNNAMED WETLAND	CHARLES RIVER										X		YES
OF-10	UNNAMED WETLAND					X								YES
OF-100	MILL RIVER	MILL RIVER										X		YES
OF-101	MILL RIVER	MILL RIVER										X		YES
OF-103	<Null>					X						X		YES
OF-104	MILL RIVER	MILL RIVER				X						X		YES
OF-105	<Null>	HOPEDALE POND										X		YES
OF-106	UNNAMED WETLAND					X								YES
OF-107	UNNAMED WETLAND					X								YES
OF-108	<Null>	MILL RIVER										X		YES
OF-109	MILL RIVER	MILL RIVER				X						X		YES
OF-11	UNNAMED WETLAND					X								YES
OF-110	MILL RIVER	MILL RIVER										X		YES
OF-111	MILL RIVER	MILL RIVER										X		YES
OF-112	MILL RIVER	MILL RIVER										X		YES
OF-113	<Null>											X		YES
OF-114	UNNAMED WETLAND	UNNAMED WETLAND										X		YES
OF-115	<Null>											X		YES
OF-116	<Null>											X		YES
OF-117	UNNAMED WETLAND											X		YES
OF-118	<Null>											X		YES
OF-119	<Null>	<Null>										X		YES
OF-120	<Null>	<Null>												
OF-12	UNNAMED WETLAND	MILL RIVER				X						X		YES
OF-121	UNNAMED STREAM	SPINDLEVILLE POND												
OF-122	MILL RIVER	MILL RIVER				X						X		YES
OF-123	UNNAMED WETLAND											X		YES
OF-124	MILL RIVER	MILL RIVER				X						X		YES
OF-125	HOPEDALE POND	HOPEDALE POND	X			X					X	X		YES
OF-126	HOPEDALE POND	HOPEDALE POND										X		YES
OF-127	<Null>	MILL RIVER										X		YES
OF-128	UNNAMED WETLAND	MILL RIVER												
OF-129	SPINDLEVILLE POND	SPINDLEVILLE POND	X								X	X		YES
OF-13	UNNNAMED WETLAND	SPINDLEVILLE POND										X		YES
OF-130	SPINDLEVILLE POND	SPINDLEVILLE POND				X								YES
OF-131	<Null>	SPINDLEVILLE POND										X		YES
OF-132	<Null>	MILL RIVER										X		YES
OF-133	UNNAMED WETLAND	MILL RIVER										X		YES
OF-134	MILL RIVER	MILL RIVER										X		YES
OF-135	MILL RIVER	MILL RIVER										X		YES
OF-136	<Null>											X		YES
OF-137	<Null>											X		YES
OF-138	<Null>											X		YES
OF-139	<Null>					X						X		YES
OF-14	<Null>					X								YES
OF-140	MILL RIVER	MILL RIVER										X		YES
OF-141	CHARLES RIVER	CHARLES RIVER										X		YES
OF-142	<Null>											X		YES
OF-143	<Null>											X		YES
OF-144	HOPEDALE POND	HOPEDALE POND										X		YES
OF-145	<Null>					X						X		YES
OF-146	MILL RIVER	MILL RIVER				X						X		YES
OF-147	<Null>					X						X		YES
OF-148	MILL RIVER	MILL RIVER				X						X		YES
OF-149	<Null>											X		YES
OF-15	<Null>	SPINDLEVILLE POND				X								YES
OF-16	UNNAMED WETLAND	SPINDLEVILLE POND				X								YES
OF-17	<Null>	SPINDLEVILLE POND				X								YES
OF-18	<Null>	SPINDLEVILLE POND				X								YES
OF-19	<Null>	SPINDLEVILLE POND				X								YES
OF-2	UNNAMED WETLAND					X								YES
OF-20	UNNAMED WETLAND					X								YES
OF-21	<Null>	MILL RIVER				X						X		YES
OF-22	SPINDLEVILLE POND	SPINDLEVILLE POND				X						X		YES
OF-24	UNNAMED WETLAND	MILL RIVER										X		YES
OF-25	UNNAMED WETLAND	MILL RIVER										X		YES
OF-26	UNNAMED WETLAND	MILL RIVER										X		YES
OF-27	UNNAMED WETLAND	MILL RIVER				X						X		YES
OF-28	UNNAMED WETLAND	MILL RIVER				X						X		YES
OF-29	UNNAMED WETLAND	MILL RIVER										X		YES
OF-3	<Null>					X								YES
OF-30	UNNAMED WETLAND	MILL RIVER				X								YES
OF-31	UNNAMED WETLAND	MILL RIVER				X								YES
OF-32	UNNAMED WETLAND	MILL RIVER				X								YES
OF-33	UNNAMED WETLAND	MILL RIVER				X								YES
OF-34	UNNAMED WETLAND	MILL RIVER				X								YES
OF-35	UNNAMED STREAM	MILL RIVER				X								YES
OF-36	HOPEDALE POND	HOPEDALE POND				X						X		YES
OF-37	UNNAMED STREAM	HOPEDALE POND				X						X		YES
OF-38	UNNAMED STREAM	HOPEDALE POND	X			X					X	X		YES
OF-39	MILL RIVER	MILL RIVER				X						X		YES
OF-4	UNNAMED WETLAND					X								YES
OF-40	HOPEDALE POND	HOPEDALE POND				X						X		YES
OF-41	HOPEDALE POND	HOPEDALE POND										X		YES
OF-42	HOPEDALE POND	HOPEDALE POND										X		YES
OF-43	HOPEDALE POND	HOPEDALE POND				X						X		YES
OF-44	HOPEDALE POND	HOPEDALE POND										X		YES
OF-45	HOPEDALE POND	HOPEDALE POND				X						X		YES
OF-46	HOPEDALE POND	HOPEDALE POND										X		YES
OF-47	HOPEDALE POND	HOPEDALE POND										X		YES
OF-48	HOPEDALE POND	HOPEDALE POND										X		YES
OF-49	HOPEDALE POND	HOPEDALE POND										X		YES
OF-5	<Null>													
OF-50	HOPEDALE POND	HOPEDALE POND										X		YES

TOWN OF HOPEDALE, MA
SVF TABLE

Outfall ID	Receiving Water	Eventual Recieving Water	History of SSOs	Common or Twin Invert Manholes	Common Trench Construction	Storm/ Sanitary Crossings	Sanitary Lines with Underdrains	Inadequate LOS	Former Combined Sewers	Sanitary Sewer Defects	SSO Potential in Event of System Failures	Sanitary and Storm Drain Infrastructure > 40 years	History of Board of Health Actions Addressing Septic Failure	Wet Weather Sampling Required?
OF-51	HOPEDALE POND	HOPEDALE POND				X						X		YES
OF-52	HOPEDALE POND	HOPEDALE POND										X		YES
OF-53	<Null>	MILL RIVER				X						X		YES
OF-54	HOPEDALE POND	HOPEDALE POND										X		YES
OF-55	HOPEDALE POND	HOPEDALE POND										X		YES
OF-56	HOPEDALE POND	HOPEDALE POND										X		YES
OF-57	HOPEDALE POND	HOPEDALE POND										X		YES
OF-59	<Null>					X						X		YES
OF-6	<Null>					X						X		YES
OF-60	<Null>	MILL RIVER										X		YES
OF-61	HOPEDALE POND	HOPEDALE POND				X						X		YES
OF-62	<Null>	HOPEDALE POND				X						X		YES
OF-63	<Null>	HOPEDALE POND				X						X		YES
OF-64	<Null>	HOPEDALE POND				X						X		YES
OF-65	UNNAMED STREAM	HOPEDALE POND				X						X		YES
OF-66	HOPEDALE POND	HOPEDALE POND				X						X		YES
OF-67	<Null>					X						X		YES
OF-68	<Null>					X						X		YES
OF-7	<Null>													
OF-70	<Null>	MILL RIVER				X						X		YES
OF-71	UNNAMED STREAM	MILL RIVER				X						X		YES
OF-72	MILL RIVER	MILL RIVER				X						X		YES
OF-73	MILL RIVER	MILL RIVER				X						X		YES
OF-74	MILL RIVER	MILL RIVER				X						X		YES
OF-75	UNNAMED STREAM	MILL RIVER				X								YES
OF-76	UNNAMED STREAM	MILL RIVER				X								YES
OF-77	UNNAMED WETLAND	MILL RIVER				X								YES
OF-78	UNNAMED STREAM	MILL RIVER				X								YES
OF-79	MILL RIVER	MILL RIVER				X								YES
OF-8	<Null>													
OF-80	UNNAMED WETLAND	UNNAMED WETLAND				X								YES
OF-81	UNNAMED STREAM					X								YES
OF-82	UNNAMED STREAM					X								YES
OF-83	UNNAMED STREAM											X		YES
OF-84	<Null>					X						X		YES
OF-85	SPINDLEVILLE POND	SPINDLEVILLE POND										X		YES
OF-86	SPINDLEVILLE POND	SPINDLEVILLE POND				X						X		YES
OF-87	MILL RIVER	MILL RIVER				X						X		YES
OF-88	UNNAMED STREAM					X						X		YES
OF-89	UNNAMED WETLAND					X						X		YES
OF-9	<Null>													
OF-90	UNNAMED WETLAND					X						X		YES
OF-91	UNNAMED WETLAND					X						X		YES
OF-92	MILL RIVER	MILL RIVER				X						X		YES
OF-93	MILL RIVER	MILL RIVER				X						X		YES
OF-94	UNNAMED STREAM											X		YES
OF-95	<Null>					X						X		YES
OF-96	<Null>					X						X		YES
OF-98	CHARLES RIVER	CHARLES RIVER										X		YES
OF-99	CHARLES RIVER	CHARLES RIVER										X		YES
OF-150	CHARLES RIVER	CHARLES RIVER										X		YES
OF-151	<Null>					X						X		YES
OF-152	<Null>											X		YES
OF-153	<Null>					X						X		YES
OF-154	MILL RIVER	MILL RIVER										X		YES
OF-155	HOPEDALE POND	HOPEDALE POND				X						X		YES
OF-156	MILL RIVER	MILL RIVER				X						X		YES
OF-157	MILL RIVER	MILL RIVER				X						X		YES
OF-158	<Null>					X						X		YES
OF-163	<Null>											X		YES
OF-159	<Null>											X		YES
OF-160	MILL RIVER	MILL RIVER										X		YES
OF-161	<Null>											X		YES
OF-162	<Null>											X		YES
OF-23	<Null>											X		YES

Appendix G

Sample Field Investigation Forms
Draft Sample Letters and Notifications

Town of Hopedale, Massachusetts
Illicit Discharge Detection & Elimination Program

Dry-Weather Manhole Inspection

Date: _____

Inspector: _____

Outfall of Concern	Inspection Location	Findings

Town of Hopedale, Massachusetts
Illicit Discharge Detection & Elimination Program

Dry-Weather Sampling

Date: _____

Sampler: _____

Outfall of Concern	Sample Location	Sample Time	Analysis Time	Chlorine (mg/L)	Temp. (^{o}F)	Comments

Town of Hopedale, Massachusetts
Illicit Discharge Detection & Elimination Program

Dye Testing Field Data Sheet

Outfall of Concern	Date/Time	Site Location	Dye Introduced	Dye Test Result	Comments

Town of Hopedale, Massachusetts
Illicit Discharge Detection & Elimination Program

Box Culvert Sampling

Date: _____

Sampler: _____

Site Location	Sample Location	Sample Time	Analysis Time	Chlorine (mg/L)	Temp. (^{o}F)	Comments
	ex: Drain manhole					

Town of Hopedale, Massachusetts
Illicit Discharge Detection & Elimination Program
Drain Segment Isolation - Field Data Sheet

Date: _____
Sampler: _____

Outfall of Concern	Site Location	Sandbag Location	Sample Taken?	Comments	Sample Time

Appendix H

Ongoing and Proposed Field Investigation Records

HOPEDALE IDDE PLAN

Appendix I

Sample Written Order

Appendix J

Tracking List of Illicit Discharges Identified and Removed

Appendix K

IDDE Municipal Employee Training Records

Illicit Discharge Detection and Elimination (IDDE) Program
Employee Training Record

Hopedale, Massachusetts

Date of Training: _____

Duration of Training: _____

Name	Title	Signature